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THE FOREST WORKER

JANUARY, 1926.

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THE FOREST WORKER

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ANNOUNCEMENTS

Outdoor Recreation Conference

The President's Committee on Outdoor Recreation has extended an invitation to the National Conference on Outdoor Recreation and to the members of its general council to meet with the committee in Washington, D.C., January 20 and 21. This will be the first meeting of the full conference since its initial organization in May, 1924, and the second meeting of the general council. The principal objects of the meeting are to consider Federal and State responsibilities in outdoor recreation; a national program for 1926 for the endorsement of the President's committee; and progress reports on conference surveys and committees. Officers will be elected for the new year.

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State Extension Foresters to Meet

A conference of extension foresters has been called for January 11, 12, and 13, to be held in the conference room of the Extension Service of the Department of Agriculture, Washington, D. C. An attendance of 25 or 30 men from as many States is expected. The principal object is to discuss the development of programs for forestry extension and ways of making these programs effective. Attention will be given to motion pictures, exhibits, lantern slides, posters, and slogans, as well as demonstrations and tours.

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Positions for Three Foresters in Georgia

The State of Georgia is in need of three district foresters, one each for the mountain, piedmont, and coastal plain regions. Each of these will take direct charge of fire-control organization, under the supervision of the State forester. Qualified foresters are sought for these positions, which it is understood will pay an initial salary of \$2,400.

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STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

In Connecticut

The Connecticut Legislature gave more attention to forestry in its 1925 session than in any other of the State's history. It appropriated \$455,000 for forest and park purposes, including an allotment of \$150,000 for new purchases of land for forests and game preserves. These purchases are expected to add 25,000 acres to the present 12,000 acres of State-owned forests and game preserves. They were entrusted to a newly-created commission of forestry and wild life of which the officers are: president, Senator Frederick C. Walcott, president of the State board of fisheries and game; vice president, Prof. H. H. Chapman of Yale; and secretary, Walter Filley, forester at the Connecticut Agricultural Experiment Station. The sum of \$5,000 was allotted for the establishment of a nursery to supply planting stock for the State forests, and the period during which camp-fire and brush-burning permits are required was made to extend from March 1 to December 1.

While urging the legislature to buy more forest lands, the Connecticut Forestry Association has on its own part collected a "People's Forest Fund" and with it added 1,046 acres of well-timbered land to the State forests.

The Connecticut Forestry Association has in the last few years succeeded in greatly popularizing its meetings, partly by meeting jointly with other organizations such as farm bureaus and local civic associations. It circulates forestry films and exhibits, works through the press, and has abandoned the publication of technical papers in order to get out a series of popular bulletins on subjects of local interest. Its present aims include the enlargement of the area of the State's forests to 200,000 acres, better fire protection for private forests, and reform in forest land taxation.

The Connecticut association was in existence for many years before it had a membership of 100 or carried its activities beyond their original scope. In 1922 the 27-year-old society employed a secretary and began to expand. In the short period since then its membership has gone beyond 1,200. In discussing the past year's gains in forestry legislation for Connecticut, the president of the association, Dean Graves of Yale, states that "as the only organized body in Connecticut working day in and day out along this line, it may fairly be credited for a large measure of the success obtained."

West Virginia Association Organizes and Recommends

The Association of West Virginia Foresters, organized in Elkins about a year ago, met in Charleston on December 3 and voted to form a permanent association admitting professional foresters and other persons who are especially interested in forestry or have been active in the forestry movement. B. L. Roberts, forester of the Cherry River Boom and Lumber Company, was elected president for the coming year, and recommendations were prepared for the State forest, parks, and conservation commission. These call for the employment of a State forester to head a coordinate division under the game and fish commission and the renaming of that commission "the forest, game, and fish commission"; the amendment of the tax laws of the State as applying to forest lands, along the lines recommended by the Senate Committee on Reforestation; continued trial of the new West Virginia State-wide fire control law without amendment until it becomes more firmly established and the need for its amendment is more clearly demonstrated; and the steady expansion of the State's fire-control organization to cover the entire forested area of the State, approximately 10 million acres, instead of 4 million acres as at present.

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West Virginia Commission Begins Forestry Investigation

The Forest, Parks, and Conservation Commission of West Virginia met at Charleston on December 4 to take the first steps in the investigation on which it is to report at the next session of the legislature. This investigation is to cover the whole field of conservation of the State's natural resources. Governor Howard M. Gore presided as chairman of the commission and Nat T. Frame, State director of agricultural extension, was made secretary. Later in the same day about fifty representative men of the State were brought together by invitation of the governor in a meeting at which the forestry and conservation situation of the State was quite definitely presented and suggestions were brought out as to future steps. James E. Scott, of the U. S. Forest Service, gave an address on "Essentials in State Forestry," and George H. Collingwood, extension forester, discussed cooperation under Section 5 of the Clarke-McNary Law. Forest Supervisor C. L. Perkins of Elkins, W. Va., outlined the national forest program applied to the Monongahela Forest.

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Trees for North Dakota Farms

The State of North Dakota has arranged for cooperation with the Forest Service and the Extension Service of the Department of Agriculture under Sections 4 and 5 of the Clarke-McNary Act. F. E. Cobb, State forester and president of the North Dakota School of Forestry, will act for the State in the cooperative effort to assist farmers in developing shelter belts, windbreaks, and wood lots. The State nursery at Bottineau will be reestablished to supply trees for distribution to farmers and also for demonstration work. It will be under the management of S. S. Burton, a forestry graduate of the University of Minnesota formerly in charge of the windbreak project of that State. C. A. Gillett, a Cornell graduate, will act as extension forester, with headquarters at Bottineau. He will work with county agents in organizing the shelter-belt and wood-lot project, and will give lectures and hold demonstrations.

In order to find out what they have to start with, the State forestry officials are planning to make a complete survey of the State's natural woods and present tree plantations, largely by means of questionnaires mailed to farmers.

Mr. Cobb and Mr. Burton in traveling from Bismarck to Bottineau recently made a test count of the farmsteads within one-half mile of the highway having no trees or an inadequate number. Of the 322 farmsteads observed on the 232-mile trip 142 had a considerable number of trees, such as an old timber claim or a young tree plantation that will eventually protect the buildings of the farm; 62 had one tree or a clump affording no protection but showing that trees would grow on the site; and 118 were absolutely treeless. Mr. Cobb remarks that the number of farms having trees was considerably larger than he had imagined it would be, and that a snap judgment on the treelessness of the prairies is apt to be a little too strong because the farms are so large.

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The Florida Beautification and Forestry Society has put James O. Hazard in charge of its work for the betterment of the State's forests and the protection of its natural beauty. Mr. Hazard is a graduate of the Yale Forest School and has practiced forestry for several years in New Jersey and Pennsylvania. The Florida Chamber of Commerce, the Florida Forestry Association, and the University of Florida are cooperating with the society, which is headed by Dr. A. A. Murphree, president of the university.

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California's Big Cooperative Plan

The 12,500,000 acres of forest, watershed, and range areas in California which are not included in national forests are to be guarded in the coming year by 21 State rangers and nearly 500 volunteer State firewardens, according to an announcement by State Forester M. B. Pratt. The detection service of the U. S. Forest Service lookouts will be supplemented by 6 State lookouts. Airplanes from Mather Field will be available to State forestry officers for reconnaissance flights. The protection work undertaken by the State will be based on cooperative agreements with the Federal Government, counties, municipalities, corporations, and private owners of timber.

Three men are to be detailed specifically to the inspection of logging equipment, and during the appropriate season most of the ranger force of the State will be detailed to the supervision of slash burning.

The current plan for forest improvements calls for the completion by July 1 of firebreaks for the protection of the watersheds of Los Angeles County, and for watershed protection in the Tamalpais forest fire district and the San Bernardino Mountains. The State will share equally with the affected counties the expense of these improvements, which will be about \$70,000.

A forester connected with the State university extension service and working in close cooperation with the State department of forestry will in the coming year offer advice on forestry problems, especially those of farmers, and will supervise demonstration plantings of forest trees.

Steamed Nursery Beds

The Pennsylvania Department of Forests and Waters is experimenting at the Greenwood Nursery in the sterilization of nursery beds. Each portion of the bed is covered with a sheet metal pan 12 feet long, 4 feet wide, and 1 foot deep, and charged with steam for 30 minutes. The ground is heated to such a temperature that all weed seeds and grubs within a foot of the surface are destroyed.

States Enroll for Cooperative Production of Planting Stock

Section 4 of the Clarke-McNary Act, providing for cooperation between the Federal and State Governments in the procurement, production, and distribution of forest tree seeds and plants for use on farms, has greatly stimulated these activities. Agreements to cooperate in this work have already been executed by the following 14 States: New Hampshire, Vermont, Connecticut, Pennsylvania, Maryland, Ohio, Indiana, Virginia, North Carolina, Kentucky, Louisiana, Wisconsin, Oregon, and California. In the case of 4 States -- Iowa, Washington, Idaho, and North Dakota -- agreements are now being executed, and 8 others -- Maine, Massachusetts, New York, Michigan, Alabama, Mississippi, Oklahoma, and South Dakota -- will probably qualify for cooperation before the spring planting season.

In the 18 States where this cooperative work is now lined up in detail the estimated cost for the present Federal fiscal year is \$170,000, of which the States' share is \$129,140. Each cooperating State receives a Federal allotment of not more than \$2,000.

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Pennsylvania to Plant Forest Trees on Arbor Day

In preparation for the spring Arbor Days of 1926 a special tree-planting project has been worked out by forestry and education officials of Pennsylvania. The superintendent of public instruction has sent out to school superintendents the suggestion that without discontinuing the use of shade and ornamental trees for Arbor Day planting they encourage the schools this spring to plant forest trees on idle land. The department of forests and waters has agreed to supply forest tree seedlings to schools free of charge upon request from superintendents, secretaries of school boards, or teachers, and is reserving a million white pine and Scotch pine trees for this purpose. The State superintendent's message appeared in the November number of the Pennsylvania School Journal followed by information as to the planting equipment needed and general planting instructions, and a blank form for ordering the seedlings.

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Blister rust control work in New York State in 1925 covered nearly 10,000 acres more than in any preceding year. The total area protected was 34,837 acres. Twice as many landowners cooperated as in 1924. The Saratoga County Board made the first county appropriation for this work, setting aside \$500 for the protection of county property in the town of Providence.

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Vermont Association Offers Trees for Municipal Forests

The Vermont Forestry Association is offering to supply and plant the first 5,000 trees for any town in the State that establishes a municipal forest of 100 acres or more. The laws of Vermont provide that a town may vote such sums of money as it deems best for the purchase, management, and improvement of lands for forest purposes, and provide for bond issues to cover such purchase or development. Twenty-five municipal forests have already been established in the State, with a total area of about 6,000 acres.

Governor Billings is urging the people of Vermont to reforest waste and idle lands. He states that he has for years been planting from 500 to 5,000 trees annually on his own 225-acre property near Woodstock.

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Georgia to Serve the South

The Georgia Forestry Association expects soon to publish the first number of the "Southern Forester." The paper will be the official organ of the Georgia Board of Forestry, but will be devoted to the interests of forestry throughout the South. C. B. Harman, secretary of the association, will act as editor.

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A resolution introduced in the House of Representatives by Resident Commissioner Davila of Porto Rico would authorize the Secretary of Agriculture to cooperate with Territories and possessions of the United States on the same terms and conditions as with States under Sections 3, 4, and 5 of the Clarke-McNary Act.

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EDUCATION AND EXTENSION

Forest Schools Demonstrate the Portable Sawmill

By John B. Cuno, U. S. Forest Service

The second portable sawmill demonstration of the year at Pennsylvania State College was held in October. Following closely on its heels a portable mill demonstration was held by the New York State College of Forestry at Syracuse, N. Y. At both of these demonstrations, which were attended by Pennsylvania and New York farmers, mill men, mine owners, and men in related industries, the fact was brought out that there is great need for better methods of sawing and for better grading, better seasoning, and better merchandising of the products.

Various types of portable mills, saws, and power were shown. At the Pennsylvania demonstration forestry students kept time, power, and fuel-consumption records for sawing different sizes and species of logs. Men of the Central Pennsylvania Lumber Co. directed the sawing, graded the lumber, and explained their methods. Talks and discussions by foresters and by manufacturers of sawmills, saws, tractors, electric motors, belting, and logging equipment formed a large part of the program at both institutions.

At the Pennsylvania demonstration the Pennsylvania Forest Products Manufacturers' Association was organized. It will have headquarters at Tyrone and is under the direction of Ralph Smith, secretary-treasurer. At the wood-utilization conference at Syracuse in connection with which the portable mill demonstration there was held, a permanent committee was appointed with A. B. Recknagel of the Empire State Forest Products Association, Albany, as secretary. Details concerning the demonstrations conducted in these States and plans for the future can be obtained from these men.

It need hardly be said that the small sawmill will in the future - if it has not already done so - take the place of the large mill in the East and the South. It has already made inroads in the far West. The small mill can operate and continue operations on a perpetual basis if some of the simple principles of forest practice and close utilization are adhered to. These demonstrations showed that lumber equal in quality to that cut by large mills can be cut on portable or small mills if the mills are substantial and properly aligned, and are operated by intelligent sawyers who understand thoroughly the grades of lumber.

It was also brought out that by stacking according to grades, in small stacks, on good foundations, with adequate pitch and spacing of boards, losses in lumber can be greatly reduced. The desirability of determining the needs of local industries for special sizes and grades of 1-inch lumber, so as to be assured of a continuous outlet for a product which ordinarily sells with difficulty, was forcibly brought to the attention of all. The need for leaving in the forest all trees below certain diameters, caring for young growth in logging, and preventing fires was also made evident. All these latter points have as their aim continuous production on forest lands and closer utilization.

Additional demonstrations should be given in these same States and in other States. They should be directed by foresters and should be held at portable mill operations, on State forests, or at forest schools. Perhaps in view of the increasing significance of the portable sawmill and its products there can later be held a demonstration of nation-wide interest.

The Walter Mulford Forestry Loan Fund

A very pleasing honor has just been paid to Prof. Walter Mulford, head of the division of forestry of the University of California, by the forestry alumni, faculty, and class of 1926 of the university. As he was about to enter on a year's leave of absence he was made administrator of a fund, raised in his honor and bearing his name, from which loans are to be made to forestry students who have difficulty in meeting their school expenses. The fund will be used largely in helping students who find it a hardship to lose a summer's earnings through the required attendance at summer forestry camp.

Professor Mulford plans to spend the year 1926 in Europe, studying forestry methods applicable in California. His observations will begin in January, in southern Europe. In May he will attend the International Forestry Congress at Rome, to which he is a delegate, and later he will work northward as far as the Scandinavian countries.

Forestry Enrollment at Idaho and Iowa

The Iowa State College enrolled a larger number of forestry students this fall than ever before. The total is 101. The freshman class numbers 46, and the next largest class is the 18 seniors. The Idaho School of Forestry reports an enrollment of 116 "representing every part of the United States and three foreign countries."

Wanted: More Californians in the Forest Schools

Foresters of California are concerned over the fact that so few young men of their State are being drawn into the profession of forestry. The number of students majoring in forestry at the University of California has remained almost constant for several years. California has a population somewhat greater than the combined populations of Oregon, Washington, Idaho, and Montana, but in comparison with the 425 men from the four northwestern States now in attendance at forest schools California has not more than 60. At a fall meeting of the Forestry Club of the University of California the question was raised, Why is it that Californians are not interested in forestry? In answer it was suggested that Californians know less about woods operations than the people of the northwestern States because (1) the forest districts of California are sharply separated from the farming districts, instead of being more or less intermixed with them, and (2) a larger proportion of Californians live in cities.

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What Happens to Cornell Forestry Graduates

The Cornell Department of Forestry has collected and tabulated data as to the present employment of the 161 men graduated from it in the period 1911-1925. Of the 117 graduates with the B. S. degree 52 are in forestry and 60 are engaged in other occupations; of the 44 who took the M. F. degree 29 are practicing forestry and 14 are in other occupations. The total number of graduates now engaged in forestry includes 43 in private work, 15 in Federal, and 7 in State employ, 8 teachers, 3 in foreign countries, and 5 graduate students.

The Cornell department this year reports the largest registration of its history - 133.

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Minnesota Gets Money for Wood Chemistry Study

The University of Minnesota has received from the Cloquet Woods Products Co. a gift of \$4,000 which will be used in the study of the chemistry of wood. This makes a total of \$25,000 contributed by manufacturers to help finance the university's researches, in recognition of their value in determining the best uses for materials in industry. The gifts are received by the board of regents of the university, and then assigned to departments for use. They are accepted on condition that the money is to be devoted to pure research and that the department supervising the project is to select the workers.

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"Plant a Tree Week" in Mississippi

At the request of the Mississippi Federation of Women's Clubs Governor Whitfield proclaimed December 6-12 "Plant a Tree Week." The week was widely observed by schools, churches, and associations. On December 11, the State's Arbor Day, the federation planted a magnolia on the State capitol grounds.

The Mississippi Federation of Women's Clubs, through its State chairman of conservation, Mrs. G. H. Reeves, has for some time been working to stimulate local interest in forestry. At its invitation Mrs. Lillian T. Conway of the Washington office of the Forest Service spent six weeks of November and December in Mississippi. Mrs. Conway gave talks before women's clubs, schools, and other organizations in all parts of the State, using colored lantern slides and the motion picture "Pines for Profit."

The people of Mississippi are taking an increasing interest in forestry and realize that steps must be taken promptly if the timber which has been such an asset to the State is not to disappear. The State has an enormous cut of lumber - the fourth largest in the Union - but not much has been done to renew its forests, or to prevent the many fires which occur each year. In the southern part of the State thousands of little pines are coming in on cut-over land, and nearly all the great cut-over areas would reforest naturally if fire were kept out.

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Fire-fighting Scouts Win Prize

District Warden J. Fredrik Virgin of Maryland describes a recent triumph of a troop of "the livest scouts in the State," of which he is scoutmaster:

"To keep these youngsters out of mischief on Hallowe'en the merchants of Elkton sponsor a monster parade. Hundreds take part and substantial prizes for the best costumes, floats, etc., are awarded. So the bunch got busy, and on a large flat-bedded truck built a miniature forest fire. The front end of the truck depicted the woods in their natural beauty, the rear end showed the complete devastation after a fire, and diagonally between the two was the fire. Burning chemicals gave off volumes of smoke and red electric bulbs coupled to a storage battery supplied the flames. Eight boys manned the fire line with Rich tools, spray tanks, axes, etc., and for an hour and a half 'fought the fire' to the cheers of the 8,000 people who saw the parade. The 'Prevent Forest Fires' sign was used most liberally, and so the scouts did a 'good turn' for forestry, and incidentally won first prize (\$25). The latter is the nest egg for next year's camping fund."

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FOREST SERVICE NOTES

Study of the Forest Tax Problem

A study of the nation's forest tax problem in all its phases is being launched by the Forest Service, in accordance with provisions of the Clarke-McNary Act. These provisions are the outcome of an investigation in 1923-24 by a special committee of the Senate on reforestation, which led to the conclusion that timber growing would be stimulated by readjustments of tax laws as they apply to timber lands.

The group of foresters and economists who will make the study are headed by Prof. Fred R. Fairchild of Yale. Professor Fairchild is an authority on the general subject of taxation and was one of the earliest students and authorities in the special field of forest taxation. He has often acted as consulting expert to States and municipalities, and has for several years served on the advisory committees of the financial department of the Chamber of Commerce of the United States and of the National Commission on Federal and State Inheritance Taxation. He has been connected with the economics department of Yale University since 1904 and for the past six years has been chairman of the department.

Professor Fairchild and his staff will begin with a study of the workings of present systems of taxation in typical counties of the different forest regions of the country. They will go over local tax records to find whether forest lands are carrying or are likely to carry an unfair proportion of the tax burden, and will determine to what extent cut-over lands are being sold for delinquent taxes and what policies have been adopted by big timber owners in regard to holding or disposing of cut-over lands. In preparation for working out modified systems of taxation which will aim to relieve the owner of growing timber of any unfair tax burden without undue disturbance to local revenues, they will study local traditions of taxing and State laws and constitutions.

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Reduction of Man-caused Fires on the National Forests
By Roy Headley, U. S. Forest Service

The number of man-caused fires on the National Forests was strikingly reduced in 1925. It dropped 27 per cent below the average for the preceding six years and 40 per cent below the record for 1924. Figures for the period 1919-1925 are as follows:

1919	4,603
1920	2,996
1921	4,400
1922	4,052
1923	3,116
1924	4,826
1925	<u>2,863</u>

Average for the seven 3,839
years

Average for the six
years 1919 to 1924 .. 3,999

(The 1925 figure is for fires occurring before October 1. The total for the year will be slightly greater.)

Weather conditions were more helpful to fire prevention this year than last, but the 1925 season was by no means an easy one and on a considerable number of forests was relatively "bad." It seems reasonable to believe that the men in charge of the forests had a part in making this year's record an unusually good one.

If getting credit for it depends on telling exactly how we did it, we lose. We are always trying new fire-prevention schemes and trying to improve old ones, and when a thousand fires don't happen we cannot be sure which scheme prevented the largest number. One guess which stands analysis fairly well is that there would have been a good many more man-caused fires on the National forests this year if certain areas had not been closed to use in 1924. These closures appear to have had an unusual educational effect on the minds of forest users.

Recent cattle losses on the Lincoln National Forest have been charged to wild tobacco (*Nicotiana trigonophylla*). There are about a dozen species of tobacco indigenous to this country, but the office of grazing studies of the Forest Service has never before had record of stock touching any of them. Whatever the inherent depravity of the range cow, she has hitherto refrained from adding a quid of nicotine to her cud. The inference is that these Lincoln losses are probably associated with a severe condition of overgrazing or immoderate hunger bordering on starvation or both.

Successful Planting at Low Cost

On the Michigan National Forest planting is being carried on with unusual success at the remarkably low cost of \$2.94 an acre. Supervisor R. G. Schreck of the Michigan describes his planting work as follows:

"In 1911 a very small acreage was planted and since that time the acreage has gradually been increased until this year over 3,000 acres were planted to Norway pine - the largest area ever planted at one time and at one place by the U. S. Forest Service.

"The question is often put to us as to how we can possibly plant for \$2.94 per acre. This has resulted from very close and constant study of the entire planting operations from nursery to field, cutting down lost motion, checking up on actual field methods, and increasing the efficiency of the planting crews to such an extent that each man is now planting between 3 and 4 acres per day or between 2,100 and 2,300 trees. We are planting at the rate of 700 trees per acre. These costs of \$2.94 cover all expenses: gathering the cones in Minnesota, extracting the seed there, shipping the seed to Michigan, planting it in our nursery at East Texas and carrying it there for two years, plowing the furrows in the field, digging the stock, and the actual planting operations - including cook's wages, provisions, camp construction, all overhead, truck maintenance, and depreciation on equipment.

"In all the time that we have been lowering costs on the Michigan we have been improving our technique until our survival averages between 85 and 90 per cent.

The main success of our planting work in Michigan is due to the fact that we can plant furrows. Before the Michigan National Forest was set aside for administration the area had burned over repeatedly, until at that time the forest represented a sand plains region covered with turkey-foot, blueberries, kinnikinnick, and other inferior plants that always cause a very high fire hazard. The competition is so keen that natural reproduction or planted stock would be killed out unless furrows were ploughed or something similar was done to eliminate the dense sod and wild competition. Plowing furrows 8 feet apart enables a man to plant more trees in a day; gives the trees a good situation in which to grow; and moves away wild growth, which does not close in on the young trees until they are 6 or 7 years old and able to care for themselves, being above grass and weed competition.

"Furrows are plowed with teams and common soddy plows. We have recently devised a plow share or plow point for plowing in dense sod. We had been troubled for a long time in the dense sodded portions by the sod flopping back in the furrow. To eliminate this we purchased steel points and turned up the outer edge and sharpened it. This tends to cut the furrow clean and throws the sod out like a ribbon.

"Each man carries a small planting 'spud' or bar, which consists of a steel blade drawn to a thin point 4 inches wide and 12 inches long. This is fastened to a 3/4 inch galvanized pipe handle, 3 feet long. The tool is very easy to handle, especially in the bottom of the plowed furrow, and in the sandy region in which we are situated the bar works better than anything I know of to date. Each man carries his own box of trees and does his own planting.

"We are doing almost all of our planting work in the fall months, beginning usually in September and continuing as long as weather conditions permit. This is found more advisable in a number of ways than spring planting. At this time of the year the young trees are going into a dormant state, have stopped growing, and will endure more abuse than if planted in the spring. Again, during the fall the weather is cool and the ground is moist and cool, and the fall rains, winter snows, and spring rains settle the tree in its new environment so that it is ready to go ahead when spring opens."

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A New Intake for Gravity Pressure in Fire Fighting

In the November number of the Forest Worker the use of gravity pressure from a mountain stream for fighting fire on a park in British Columbia was mentioned. Superintendent W. G. Weigle of the Snoqualmie National Forest writes that he has been using this method with good results. During the past summer while fighting a bad fire on the north fork of the Skykomish River with two gasoline pumps, one locomotive with pump, and the gravity system, Assistant Supervisor Treen devised an intake which made the use of the gravity system much more effective. The intake consisted of 30 feet of 30-inch canvas sewed together so as to make a reservoir about 9 inches in diameter. A 1½-inch hose was connected to it by a section of 2-inch hose. With this reservoir it was possible to get a much larger quantity of water, in many places enough for two small nozzles. The intake end of the reservoir was held open by means of a ring of #9 wire and was fitted with a piece of fly screen to keep out leaves, etc. Often two lines of hose attached with a "Y" were used in order to play on the fire from two places at one time. It was found convenient, also, to attach a 1-inch or ¾-inch hose, which gave better control of water and was lighter to carry.

Congress Considers New Forest Experiment Stations

The Federal forest experiment station program, which has so far resulted in the creation of six regional forest experiment stations in six of the principal forest regions, will be greatly strengthened if bills now before Congress are enacted into law. The program as originally approved by Secretary Wallace several years ago provides ultimately for 10 or 12 regional experiment stations, well manned and equipped, designed to aid the Federal Government, the States, and private owners in solving problems of timber growing, and to cooperate with various interested agencies in forest research. This program is regarded by the Department of Agriculture as an important part of the national forestry program. The bills now before Congress provide for two new regional forest experiment stations and for substantial expansion of two others.

A bill (H.R.397) introduced by Representative Fitzgerald of Ohio would appropriate \$50,000, to be immediately available, to establish a forest experiment station in the Ohio and Mississippi Valleys. This great central hardwood region includes Ohio, Indiana, Illinois, Missouri, Iowa, and southern Wisconsin and Michigan. The bill provides for cooperation with States, universities, colleges, county and municipal agencies, associations, and individuals.

Senator Overman through Senate bill 1161 seeks to have the Appalachian Forest Experiment Station enlarged by the addition to its funds of \$40,000, to become immediately available for silvicultural and economic research and demonstration in North Carolina, Virginia, Maryland, West Virginia, Kentucky, Tennessee, and adjacent States. This bill likewise provides for cooperation with the various agencies mentioned under the Fitzgerald bill.

Senate bill 1409, introduced by Senator Ashurst, would provide \$25,000 for the establishment and maintenance of a forest experiment station in Arizona for research in that State and in adjacent States presumably including New Mexico, Nevada, and Utah.

"Field Day" Demonstrations of Range Experiment Stations

The first "Field Day" at the Santa Rita Range Reserve was held on October 3, 1925. About 60 cattlemen, State experiment station workers, bankers, and other interested persons including Governor Hunt of Arizona were brought together for the demonstration. The visitors assembled at Continental, Ariz., about 30 miles south of Tucson, and were taken over the range reserve in automobiles. At suitable points the party stopped for demonstrations of deferred grazing, proper utilization of range, proper methods of salting cattle, improvement in type and grade of cattle, and methods of increasing the calf crop and decreasing losses. Figures were presented showing that on fenced range with improved methods of management it is possible to make a 7.4 per cent profit on a total investment of \$85.80 per head. Contrasting averages were given for a number of representative cattle outfits running on the public domain which indicated a 5.8 per cent loss on a total investment of approximately \$56.00 per head.

At the evening meeting all phases of the range cattle industry in the Southwest were discussed by specialists of the Forest Service and of State agricultural colleges.

"Field Day" was held in August at the Great Basin Experiment Station, Ephraim, Utah, with the cooperation of the Utah State Extension Service, to demonstrate the results from improved methods of range management and to exhibit the work under way at the station. It was attended by 125 persons, including 90 stockmen. The need for conservative stocking and proper seasonal use, and the question as to just what constitutes proper utilization of the range, were the points emphasized.

The visitors met at Ephraim and proceeded up the mountain in automobiles, making stops at the various types extending from the sagebrush in the valley, at about 5,000 feet, to the alpine type at the summit of the Wasatch Divide, at about 10,500 feet.

At an evening meeting Doctor Peterson, director of extension for Utah, led a discussion in regard to the control of the public domain. A strong sentiment developed in favor of putting the public domain under administration, preferably by the Federal Government with some branch of the Department of Agriculture - possibly the Forest Service - in charge. A number of men grazing stock both on the national forests and on the public domain expressed themselves strongly in favor of such administration, and emphasized the great depletion and the unsatisfactory conditions now prevailing on the public domain.

Copies of the program of the Santa Rita Field Day, describing the methods of cattle management on the Santa Rita Range Reserve, may be obtained from Director Matt J. Culley, Continental, Ariz. C. L. Forsling, U.S. Forest Service, Ogden, Utah, will furnish on request copies of the program of the Great Basin Field Day, which includes an outline of the range management principles discussed.

Forest Planting on the Lassen
By A. E. Wieslander, U. S. Forest Service

October 21 to 27, 1925, might well have been called "Forest Planting Week" on the Lassen National Forest, California. The entire district ranger force spent that period in setting out 8,000 2-year-old yellow pine seedlings shipped from the nursery on the Columbia National Forest, Washington. The planting site was a portion of the Antelope Mountain burn where destruction was complete. The area had been logged twice, once prior to the fire of 1924 and once last spring to salvage the fire-killed timber. The soil was comparatively deep and the plentiful rains of this fall had put it in ideal condition.

There were six of us on the job and we split into two crews of three men each. In each crew one man dug the holes for two men planting. Deep holes were made with a spade and each tree was carefully set out and the soil compacted tightly around it. Each crew averaged 900 trees a day. The trees were spaced not less than 10 feet apart, and when the job was completed a traverse of the area showed that approximately 15 acres had been covered. If good planting stock, ideal soil conditions on a good site, and careful planting are any indication, this experimental project should be successful. We are optimistic, at any rate, since better than 70 per cent of the 1,000 trees set out a year ago on a less favorable site in the same locality are vigorous and healthy at the end of the first season.

In addition to the tree planting, an area of about 10 acres was seed-spotted with a mixture of yellow and Jeffrey pine seed. On this job we divided into three crews of two men each. One man of each crew was equipped with a hoe and the other with a bucket of seed. Holes were dug not less than 10 feet apart and from six to a dozen seed were put into each hole, covered with soil, and primed with the foot. A total of 3,861 spots were made in this way.

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Game and a Feast
on Oklahoma's One National Forest

By Will C. Barnes, U. S. Forest Service

Away down in the southwestern corner of Oklahoma there rises out of the comparatively level "plains" an odd jumble of huge granite and limestone boulders, in several instances piled up into what down that way they call the "Wichita Mountains" - a little rocky islet in a vast sea of grassy prairies. None of the hills are very high, and judged by Rocky Mountain standards they are mere molehills. But to the Oklahoma people they are real mountains, and Mount Scott, 2,400 feet in elevation, is in their eyes fully as sightly and appealing as is Pike's Peak to their fellow citizens to the north.

Except for a few cottonwoods and such trees along the streams, 95 per cent of the timber is white oak of fairly good size and very attractive in its growth. In the rougher hills a few scattered junipers manage to exist. The oak is valuable chiefly for fence posts, rails, and firewood. The juniper furnishes local Christmas trees.

This region is rich in historical interest. Around these mountains the plains Indians of the early days gathered to hunt buffalo and incidentally hunt each other. Fort Sill, on the southern edge of these mountains, was the most important military post in the Southwest in the old pioneer days. Quanah Parker, the last and greatest chief of the Comanches, lived and died there. Geronimo, the Apache chief, was held a prisoner at Fort Sill for many years and died in the post in 1911.

The mountains lie almost in the center of the former range of the great Southern buffalo herd and were a noted hunting ground in the early days. Besides buffalo the area once teemed with antelope, white-tailed deer, and elk; and turkeys, quail, and other game birds were unusually plentiful.

In 1901, when the old Indian territory was opened to settlement, Congress set aside some 61,000 acres of these mountains as the Wichita National Forest. In 1905 President Roosevelt designated it also as a national game preserve.

A number of clear mountain streams flow out of these hills, running at times through deep mysterious canons or along high cliffs capped with huge boulders or ornamented with odd geological formations - spires, towers, and balanced rocks. Here and there the streams have dug out great deep shadowy pools with clean sandy bottoms which furnish admirable places for "swimmin' holes."

When the area was first placed in charge of the Forest Service there were but 19 white-tailed deer and a few quail left out of the former dense game population. Man's greed and thoughtlessness had eliminated all the rest. The American Bison Society of New York offered to stock the area with buffalo and shipped 15 head from the New York Zoological Garden for that purpose. The wild turkeys to restock it had to be captured in Virginia and shipped out. Antelope came from Alberta, Canada. Odd indeed to secure the "seed" for restocking from such distant sources! The city of Wichita, Kans., had a single bull elk on their hands which in 1908 they donated to the cause. He reigned solitary and alone until in 1910 a shipment came to keep him company from the Jackson Hole elk herd in western Wyoming.

All these animals have done exceedingly well except the antelope. They, poor little chaps, so far haven't seemed to thrive. The forest officers, however, hope the present little herd will increase. The buffalo and elk have increased until the pastures are too heavily stocked. Individuals are therefore being sold or given away, either for stocking other game preserves or for food. The turkeys have multiplied and are overflowing into the surrounding cultivated country in considerable numbers. You see them in the woods in big flocks everywhere you drive.

To the people of southwestern Oklahoma and near-by Texas the Wichita Mountains are a place of refuge from the heat of the open plains, and they have made the Wichita Forest their outdoor recreation center. It is their "one little ewe lamb" when it comes to a recreation area and, as with Rome, all roads in the region lead to the Wichita Forest.

There are a number of established camp grounds on the forest and on a fine Sunday - and down that way all Sundays are fine climatically - from 500 to 600 autos are to be seen at a single camp ground. Somebody remarked that the swimming holes are Oklahoma's public bath-tubs, and they are certainly well patronized during the bathing season. The near-by cities - and near-by means within a radius of 100 miles - vie with each other in establishing and fitting up these camp grounds, calling them by their city names. Also there are "Kiwanis," "Rotary," "Chamber of Commerce," "Elks," "Automobile" and other such camp grounds equipped and cared for by members of these organizations. The Boy and Girl Scouts from all over the region have camping outings on the area, and so great is the demand that the forest supervisor has to keep a book account with these boys' and girls' organizations so there may be no conflicting dates. He gives each a definite week to occupy and enjoy the area set aside especially for this class of recreationists. My, what good times those kids do have too! There isn't a rock or cliff within 10 miles of the "Scout Camp" that those adventurous youngsters haven't climbed all over, or a cave or crack or cranny they haven't explored thoroughly.

Thanks to the dogged determination of Frank Rush, former supervisor of the Wichita, the headquarters buildings are most attractive in design and everlasting in construction. Rush and his wife were the designers, architects, landscape gardeners, cement workers, bridge builders, road constructors, and general planners of it all.

There have been many big days on the Wichita, but the greatest so far was in the summer of 1925. The National Editorial Association, en route east from a trip to the Pacific Coast, was invited by the city of Lawton, Okla., 24 miles from the Wichita Forest, to stop off and visit. Incidentally they were offered a trip to the "buffalo pasture," as the forest is locally called, with a whole barbecued buffalo for dinner and a general round-up of Indians and of buffalo, elk, and other game animals. Naturally the editors "accepted with pleasure." The Lawton people called on Supervisor Shanklin for help. There were to be 250 editors and their families, and invited guests from Lawton and other near-by cities. Would the supervisor arrange to entertain and feed them if Lawton would pay the bills?

Out at "Buffalo Lodge" the supervisor called his four rangers together for consultation and as an equally important move he called their wives too. How those women, led by the supervisor's wife, rose to the occasion is a matter of local history, and good history at that.

Lawton paid the bills - the women did the work. They bought several hundred pounds of potatoes and onions, and with gallons of vinegar, mounds of salt and pepper, and whole sides of bacon they constructed ten bushels - ten, count 'em - of potato salad. They boiled the spuds in a huge galvanized water tank and at 4 in the afternoon those devoted forest women began "building" the salad. They pulled the long dining room table out to its full length and spread over it a great oilcloth cover, and they peeled and sliced potatoes and onions for four long hours, until there was a huge potato and onion mountain the full length of the table. Then with shovels and "spading forks" the men set to work to do the mixing while the women under the skilled direction of Mrs. Shanklin poured over it libations of vinegar, salt and pepper, celery, and chopped bacon. When the job was complete the ten bushels of salad were placed in galvanized iron tubs for future use. It was 4 o'clock in the morning before this job was done.

Meanwhile near the picnic ground a great open pit was dug, 8 or 10 feet deep, 4 wide, and 15 long, across which steel bars were placed. This was filled to the top with dry oak logs which were burned down into one grand heap of glowing coals. The rangers went out into the buffalo pasture, roped a fat young buffalo, dragged him up to the vicinity of the pit, and killed and dressed him.

Then a man famous in all that region for his ability to roast a whole buffalo at one sitting took charge and turned out a finished product the like of which these wandering editors never before put between their jaws. Like the little girl, when buffalo meat is good, it's very, very good. This was good. The rangers and their wives brewed gallons of strong black coffee over another fire and provided barrels upon barrels of lemonade cooled with ice from Lawton. The baker's wagon from Lawton hove in sight at the right time with a full load of rolls fresh from the oven. Also arrived 2,500 fine specimens of Eskimo pie for desert, together with "catin' tools" in the shape of knives, forks, paper plates, cups, and napkins.

A lot of men had been busy doing things with a couple of loads of lumber with which they turned out long lines of tables and rough benches.

Meantime the word got around that part of the United States that there was to be a Wild West Show pulled off at the Wichita Forest on a certain day, and on that day all business in the region was suspended. Everybody and his wife and family forthwith loaded themselves into the family fliwver and struck out for "Buffalo Lodge." Largely they all arrived in a bunch. When Supervisor Shanklin awoke to his responsibility he decided he needed help and needed it badly. A phone message to the commanding officer at Fort Sill brought 200 soldiers, properly officered, to his rescue. They were mostly cavalymen; the balance were on motorcycles. They were organized into a huge traffic squad and under their direction the more than 3,000 cars that blocked the one road leading to the "feed lot" were untangled and some semblance of order restored and maintained.

Having cleared a place along the high buffalo fence where the guests could park their cars and see the show in some orderly manner, the supervisor and his rangers, aided and abetted by some 200 or 300 Indians in full dress costume, rounded up about 200 buffalo in the buffalo pasture, together with 50 or 60 giant bull elk that usually graze with them. Over a prairie hill a mile or so distant, thundering down the slope towards the spot where the editorial visitors were parked, came the herd, making a noise like a thousand railroad trains on a covered bridge. The Indians also assisted mightily in the volume of sound. To them chasing that herd of buffalo was almost a sacred rite. The animals seemed to enjoy the affair and charged down toward that mob of cars and people with a recklessness and abandon that threatened to carry them right through the fence into the crowd. Fortunately the men were able to swing the leaders at the critical moment and the whole herd tore grandly down the fence line, giving the crowd the thrill of their lives, one they didn't get over for a month. Then a band of Indians did some fancy riding and arrow shooting and the crowd turned their attention to the food, which had been placed on the tables ready for the assault. After the 700 visitors had done their worst there was still an ample supply, and the uninvited but equally hungry crowd were asked to "sit into the game" and eat a bite. Their number was estimated at from 10,000 to 12,000, big and little, young and old.

When the battle was over there wasn't a shred of buffalo meat left, the bones were picked clean and mostly carried off for souvenirs. Every bit of those ten bushels of potato salad was out of sight, the coffee pots were empty, and the lemonade barrels as dry as Jonah's gourds. All that was left was a great yellow mound of lemon peels. The whole forest force, including the five wives, went to bed and slept for two full days.

Forest Supervisor Shanklin says the whole forest was dressed for the occasion as if on parade. The day was perfect, there had been several fine rains, the prairies were all as green as emeralds, and the wonderful array of wild flowers made them look like flower gardens. To those eastern visitors it was a sight and experience long to be remembered. A good time was had by all.

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Thinning for Christmas Trees

The Pike National Forest in Colorado has thousands of acres of crowded young Douglas fir stands. It also has in the near-by cities of Denver and Colorado Springs a strong market for Christmas trees and evergreen boughs. But heretofore there has been some difficulty about thinning the stands in the way most beneficial to them and at the same time satisfying the common desire to "go to the woods for a tree."

This season Supervisor Hamel made a contract with a responsible man for the sale of about 12,000 trees to be cut shortly before Christmas. The purchaser sent most of these trees to the cities by auto truck, but he also set up in the sale area a roadside booth where those who wanted to select their trees "in the woods" could do so. Each tree bore a small tag showing that it had been cut on a national forest in a thinning that would improve the stand, and carrying the inevitable message, "Be careful with fire in the woods." The results were a satisfied public and 100 acres or more of well-thinned stands.

The purchase included the green brush, and by December 3 more than 50 tons of boughs had been taken out. Some of these were to be used for Christmas decorations, others would be woven into coarse mesh wire and used to relieve the dreariness of cemeteries during the winter months in a region too dry for evergreen trees but with little or no snow.

Incidentally, the stems of marked trees, if large enough, were saved for hewn ties or mine timbers. Everything was put to use except dead limbs.

In this instance the idea of getting Christmas trees from thinnings was seized upon as news. The papers played it up in illustrated articles, and a movie photographer was sent out to the forest to film the cutting.

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Limber Pine the Most Bibulous Rocky Mountain Forest Species

Tests of seedlings of seven Rocky Mountain species indicate that of all the local conifers limber pine makes the greatest use of water, and Engelmann spruce the least.

In these tests, made by the Rocky Mountain Forest Experiment Station, the small trees were given all the water they would use. Specially constructed pots prevented the loss of water except by evaporation from the trees themselves. By frequent weighings and the addition of water as needed a uniform water supply for each tree was maintained.

Preliminary results of the tests give the following figures, representing for each species the number of ounces of water that the average tree will use for each ounce in dry weight of wood it puts on:

Limber pine	1,000
Western yellow pine	900
Bristlecone pine	800
Lodgepole pine	725
Pinon pine	680
Douglas fir	550
Engelmann spruce	450

These tests will be continued and enlarged during the coming season, if possible under more natural growing conditions than the present method affords.

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Nutritive Ratio of Locust and Rocky Mountain
Yellow Pine on the Kaibab

By W. A. Dayton, U. S. Forest Service

On the Kaibab National Forest it has been noted that New Mexican locust (Robinia neomexicana) is being badly injured by the deer. This is of interest in view of the fact that New Mexican locust is a good goat browse on the Gila and Lincoln Forests. It is notoriously dangerous to hitch a horse to the eastern locust (R. pseudacacia); horses have been known to die from chewing its bark, and Dr. Pammel of Iowa State College reports that all parts of the eastern locust contain a toxic albuminoid, robinin. Supervisor Mann of the Kaibab Forest recently sent to Washington for chemical analysis samples of three of the species of woody plants that are being most heavily grazed by deer on that forest, cliffrose, Mormon-tea (Ephedra viridis), and Rocky Mountain yellow pine. Analyses by the Bureau of Chemistry show a number of items of interest, notably the very high nitrogen-free extract percentage (32.52) for the cliffrose (alfalfa hay has 37.1 per cent), which represents digestible carbohydrates, sugars, starches, etc., and the remarkably high percentage (8.19) in protein for the yellow pine sample - which compares favorably with 12.4 per cent for wheat and 10.1 per cent for field corn. Evidently the short-leaved form of western yellow pine (Pinus brachyptera, P. ponderosa scopulorum, or whatever it is) is a plant of considerable nutritive value!

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Total receipts from national forest resources during the fiscal year 1925 were \$5,000,137. Timber sales brought in \$2,940,393, and grazing fees \$1,725,577. When 25 per cent of the total has been paid to the States to be spent on roads and schools in the counties in which national forests are located, and 10 per cent has been set aside for building national forest roads and trails, \$3,231,680 will remain to be paid into the general fund of the U. S. Treasury.

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GENERAL FOREST NEWS

Timber Gains and Losses of the Great Southern Lumber Co.

The Great Southern Lumber Co. reports satisfactory results from the planting of 3,500,000 trees at Bogalusa, La., one year ago, about 85 per cent of the seedlings surviving. This fall and winter it is planting 6,000,000 slash pine seedlings raised from seed sown last March. The little trees, which now average 12 inches in height, are being set at intervals of about 5 feet in furrows opened 8 feet apart. A home-made iron dibble is the planting tool used, and a man and a boy can plant from 1 to 2 acres a day.

The tip moth, which has injured the loblolly pine set out during the past few years, causes almost no injury to the slash pine, doubtless because of its more vigorous growth and free flow of resin in wounds.

Fires on the timber lands of the Great Southern Lumber Co. during 1924-25 covered about one-twentieth of the total area of 200,000 acres. In view of the exceedingly severe drought conditions and the limited patrol, this is counted as a good record. Most of the loss occurred in Mississippi, where as yet there is no State fire-protection organization. The company's Mississippi land agent states that according to the results of a careful survey its losses by forest fire in the winter of 1924-25 amounted to 600,000 feet of timber, valued at \$60,000. On one area of 10,000 acres, fire killed 600,000 feet of heart pine and 400,000 feet of sap pine, the latter being counted as practically a dead loss. He also states that since the year 1900 fires have reduced the total stand on the company's timber land in Mississippi by 25 per cent. A "forty" which at that time had 800,000 board feet now has only 375,000.

J. K. Johnson, forester of the company, relates an experience illustrating the high degree of cooperation which it has attained with neighboring Louisiana farmers in fire prevention. On Thanksgiving Eve, 1924, during very dry, windy weather, a fire broke out in one of the fenced reforestation pastures about 4 miles from Bogalusa. Mr. Johnson got together some 20 men who had worked in the mill all day, and about 8 o'clock started with tools and provisions expecting a severe fight. On their way the party met men returning from the fire, and learned that a group of farmers and other neighbors had voluntarily attacked it and fought it out before it could spread to a large planted area near by.

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Small Trees Refuse to Pay Costs of Cutting

W. W. Ashe of the Forest Service has for many years been telling the lumbermen that what they get out of a little tree does not pay for the cutting of it. His figures showing the high cost of operating small timber and the low volume of its products have been presented in many talks and published repeatedly. Recently an Arkansas lumber company has risen to testify in his support. After installing a new circular mill which could easily cut 200 or more logs a day this firm issued instructions that pine logs should thenceforth average 50 feet. They soon found that they were operating at a loss. A close study of their problem followed in which they made use of a paper presented by Mr. Ashe at meetings of the Southern Logging Association in 1914 and 1917. This paper includes six tables giving comparative figures for the average costs of cutting small logs and large ones, and the value of the lumber. Having tested all Mr. Ashe's tables in woods and mill the firm wrote, "We were forced to conclude that he was conservative in all his figures." They went back to a 70-foot average and expect to continue this to the end of their operation.

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Timber Depletion and Railroad Junking

A recent study of the causes of railroad junking, the results of which were summarized by Norman C. McLoud in the Baltimore Evening Sun of December 16, indicates that the most important cause of the abandonment of railroad lines is the depletion of natural resources. The study was based on facts set forth in published opinions of the Interstate Commerce Commission with reference to 120 cases of abandonment authorized by the commission since November, 1920. "Conscientiously classified," says Mr. McLoud, "the reasons show that the chief offender was 'exhaustion of natural resources.' ... The mileage thus tabulated represented roads originally constructed for logging or mining operations. Viewed under the microscope provided by the Interstate Commerce Commission, these roads constitute 78 lines and branches - nearly two-thirds of the whole - and a combined length of 1,411 miles, or close to three-fifths of the entire mileage sent to the discard.....

"A striking instance of 'exhaustion of natural resources' came to light in the case of the Alabama and Mississippi Railroad, with 75 miles of track constructed for the marketing of timber products. When the timber had all been marketed the agricultural products of the territory furnished the road with but three carloads of freight within a period of 12 months prior to the abandonment of the tracks."

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Some Observations on the Livestock Industry in the West

By W. R. Chapline, U. S. Forest Service

Forage conditions throughout the West were on the whole about average or better during 1925. Only in a few places that had been short of rainfall was there a shortage of range forage. A changing sentiment in regard to economic conditions is clearly noticeable among the stockmen. The sheepmen are in a fairly prosperous condition, are beginning to liquidate their debts, and expect to continue to make profits. The cattle industry is looking at the situation from a much different point of view than in the past few years. Prices have strengthened a little, there are more buyers, and it is much easier to sell surplus animals. A good market for calves has been maintained throughout the West, stockers and feeders are in demand at better prices, and the opportunities for the sale of cows for breeding purposes and shipment to market are better than they have been for a number of years.

In general there were not so many cattle on the range in 1925 as in the past. This is particularly true of parts of California and the Southwest. In much of New Mexico a large proportion of the cattle have been shipped out in the past two years, owing to continued droughts and deterioration of range by overgrazing. The stand of forage is much below what it has been, and on extensive areas the better grasses have been killed out and the range taken by annuals and weeds of lower value.

It is clearly evident that the heavy stocking of range areas with both cattle and sheep in the past has tended toward uneconomic production. Other things being equal, fewer and better livestock and better management will prove more profitable. The sheep industry is tending toward expansion. During the past season prices were unusually high for lambs, many selling on the range for 12 and 13 cents a pound, and occasional bunches as high as 14 cents. Prices for breeding ewes and ranch property suitable for sheep production are so high, however, that the best of management will be required to obtain economic production from present purchases of sheep outfits. The low point in the cattle industry has undoubtedly been reached, and the present situation offers advantages to the person who has the nerve to step in, buy breeding cows and suitable ranches cheap, and aid in building up the industry.

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A pinetum of 200 acres which George P. Brett, president of the McMillan Co., New York, has developed near Fairfield, Conn., is said in American Forests and Forest Life to contain specimens of 300 species and varieties of conifers from all parts of the world.

Census Bureau Issues Lumber and Farm Woodland Statistics

Statistics on the distribution and consumption, as well as the production, of lumber have just been given out by the Bureau of the Census for the first time, in a booklet entitled "The Principal Lumber Industries." The figures are for the year 1923. They show that in that year 26 States consumed more lumber than they produced. Washington stood first in volume of lumber shipped to other States. Others that led in supplying lumber for use outside their own boundaries were Louisiana, Oregon, Mississippi, Alabama, and Arkansas.

California consumed more than four billion board feet, producing less than half as much. Consumption exceeded one billion board feet in Illinois, New York, Pennsylvania, Michigan, Ohio, Washington, Texas, and Indiana - and of these only Washington and Texas met their own requirements.

The national lumber output for the year totalled 36 billion board feet.

The 1925 agricultural census, preliminary summaries of which have been delivered, not only shows the area of farm woodland in every county in the United States but classifies these areas as pastured or unpastured. This is the first time the Bureau of the Census has furnished figures on this classification.

One result of the Berkeley, Calif., fire of 1923 stands on Grizzly Peak, east of the campus of the University of California, in the shape of a fire lookout station. The tower is equipped with an electric siren. Code signals blown from the tower reach Berkeley and the hills region, and besides carrying messages to deputy fire wardens stimulate interest among the people of the city.

The necessity for patrolling a seemingly dead fire is shown in an incident related by Everett R. Stanford, assistant forester of Los Angeles County, Calif. A fire on the Big Tugunga Canyon in September, 1925, devastated about 7,000 acres but was subdued after 10 days of difficult fighting. Two months later a guard reported that the fire had broken out afresh in the trunk of a lonesome pine standing on the edge of the burned area. It had been smoldering in the deep layer of mulch.

Why It Is Hard to Grow Timber in Porto Rico

W. D. Durland of the University of Porto Rico, writing in the Journal of Forestry on the status of forestry in the island, describes conditions very different from the usual idea of rapid and abundant tree growth in the tropics. He states that the soil of practically all the Porto Rican forest lands, which is volcanic in origin, "has under the influence of a deforested condition, constant warm weather, and abundant rainfall, been leached out of its original nutrient constituents and the humus content excessively decomposed or completely washed away." These soils "are extremely heavy and pack and puddle badly; even to the extent of being impervious to both air and water." This condition of the soil discourages tree growth but does not affect the growth of competing vegetation. The "maleza" - grass, weeds, shrubs, ferns, and vine growth - "grows so rapidly, occurs so abundantly and so densely, and reproduces so prolifically and completely under any and all conditions of soil and climate that it requires continual attention to keep it from destroying young tree growth.... Since it readily returns to its former state of existence even when apparently completely destroyed, the expenses of 'maleza' destruction necessary to preserve a forest plantation almost immediately amount to an expenditure prohibitive of profit from the enterprise. Most native tree species are very susceptible to the ill effects of this competitive growth even when assisted by soil preparation and weeding. Few, if any, can survive it in direct competition; none, capable of producing quality wood material. Conditions require the selection and development of hardy types of seedlings of desirable tree species, having adequate and suitable root and stock arrangement, which, with a small amount of care when placed in the field, will dominate the area and grow to maturity within a period of time conducive to profit."

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From Alfalfa to Pine

Five years ago Judge John E. Fox of the Dauphin, Pa., County Bench decided that a hillside on which he had been raising alfalfa was too steep for the growing of agricultural crops. He had been making a study of forestry, and decided to plant it to pine. He recently sold 3,000 of the trees for a price three times as great as the total cost of the planting, and has 6,000 left. The fillers have been sold for transplanting, a carload going to Kentucky. Only 3,000 of the trees, which are now from 3 to 5 feet high, will be left to mature, so 3,000 are still for sale.

Seeing is Believing

Myron R. Watson, extension forester, writes of a 29-year-old stand of white pine in East New Portland, Somerset County, Maine, which contains 22,240 board feet of round-edge lumber to the acre. Wild stock from neighboring woodlands were planted at intervals of 6 feet in rows 10 feet apart, on a lot 67 by 284 feet, and there are now 556 trees in the lot. Part of the stand has been pruned to a height of 12 or 14 feet, the remainder is untouched.

One old lumberman on seeing this plantation exclaimed, "I never believed before that timber planting was worth while!"

A stand of loblolly pine in McCormick County, S. C., was recently examined by Extension Forester Tryon to appraise fire damage. Borings showed the trees to average 50 years in age. The growth for the first 11 years was unusually good, running about 0.66 inch a year; but for each of the succeeding years the increment was only 0.21 inch. Inquiries in the neighborhood brought out the fact that the railroad which passes close by the tract was built in 1886, and was the first operated in the section. The sudden and permanent decrease in growth dating from that year would seem to be attributable to the forest fires which now occur in these woods every year.

An instance of the firing of a lightning-struck hardwood tree is reported by Assistant State Forester Geo. R. Phillips of Indiana. This occurred at Turkey Run State Park, Marshall, Ind., on August 13, 1925. The victim was an old stagheaded tulip tree. Fire started in the dead wood at the top and was soon blazing merrily. A man climbed the tree and put out the flames with a fire extinguisher.

Hunting permits are issued by the Alger-Sullivan Lumber Co., Century, Fla., to several hundred individuals each year. The form adopted by the company concludes with: "Forest Fires injure Timber, destroy game, and decrease the value of lands for grazing purposes; so use every precaution to prevent fire in the woods. LET'S ALL PRACTICE CONSERVATION!"

FOREIGN NOTES

Reorganization of Belgian Forestry Work

Only 17.7 per cent of Belgium's territory is covered with forests, and three-quarters of the nation's wood supply must be imported. With the purpose of remedying this situation the Belgian Government in 1896 established a forest research station. First trials were made, with meager funds, in the nurseries at Groenendael, near Brussels. The Belgian organization was affiliated with the Union Internationale des Recherches Forestieres, and the sixth and last congress of the union was held in Belgium in 1910.

In 1919 the Belgian service was reorganized and again established at Groenendael, where an arboretum, nurseries, and a forest museum have been created. All the documents which had been assembled by the service were lost or destroyed during the War, and the present national budget allows only 55,000 francs a year for forest research exclusive of salaries. In spite of these handicaps, the present organization has carried out certain experiments, especially in problems of reforestation, with most encouraging results. Belgium is very poor in good woods, and the service has directed a great deal of attention to the introduction of exotic species, establishing 24 arboretums throughout the country in different kinds of soil. Its principal activity has been in the afforestation of uncultivated land, especially in the sandy soils of the "Campine" in the north of Belgium.

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In Wood and Bronze

The memory of a departed forester is sometimes kept alive by a bit of woods he grew, but we do not often hear of one being honored by the erection of a monument. Such an occurrence is reported from Cauterets, France. In 1883 the population of Cauterets were much alarmed by the fall of numerous large boulders which became detached from the mountain of Peguere and threatened to destroy the celebrated baths of Raillere and Mauhourat at the foot of the mountain. They appealed to the Government, and M. Darontzey, chief of the reforestation service, came to the rescue. After engineering preparation which included the construction of a road, the removal of rocks about to fall, and the building of some retaining walls, he succeeded in stabilizing the situation by reforestation. For

years now there has been no repetition of the fall of rocks. Recently the Touring Club of France and a civic organization of Caunterets decided to commemorate this work on the site. A large assemblage of people of the community, including high officials, met for exercises. After dedicating a commemorative plaque at the entrance of the road built by M. Demontzey, they proceeded to a bridge near the falls of Cerisey and unveiled a medallion showing his face. The celebration was concluded with a reading by Mme Dussane of the Comedie Francaise.

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Forest Experiment Organization in Russia

Before the World War the bulk of Russian forests belonged to the State, and experimental work on them was carried out only by the Forest Service Bureau of the Russian Government. These forests were divided into administrative units, each headed by a forester. The size of the divisions depended largely on the economic value of the forest products, and generally diminished from north to south. Some of these forest districts were specially selected for experimental forest work, usually on problems characteristic of the region.

Such forest experimental divisions were established in the north of European Russia - in Archangel and Petrograd Provinces; in Central European Russia - in Orel and Valdimir Provinces; in the Volga region - in Samara and Kazan Provinces; in South Russia - in Yekaterinoslav, Veronozh, Kiev, and Tambov Provinces; in the mountainous region - Taurida Province (Crimea).

The foresters were, as a rule, graduates of forestry institutes, and their activities were supervised by the Central Forest Administration in Petrograd.

One of the notable features of the State forest service was the organization of most of the field and office workers into corps of foresters. Thus the personnel of the central administration, in general, worked in close harmony with foresters in the field and professors of the forestry institutes, which also were under the Forest Service Bureau. The cooperation of these three agencies was well developed, because the personnel was easily shifted from the central office to the field or forest institutes, and vice versa. This system was largely responsible for the productive results of the work of the experimental staff, based on scientific research, closely following the demands of practical foresters as suggested by local problems.

It is assumed that this work has been continued since that time, although no specific data on this subject have come to the attention of the U. S. Forest Service.

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Motor-truck units of the Canadian Forestry Association are carrying a forest protection appeal to many villages in remote parts of the Dominion. In the seven months beginning with April, 1925, they held almost 1,000 mass meetings, at which the average attendance was 232. Each of the units includes motion picture equipment and is manned by two men. In this campaign they have traveled a total distance of more than 17,000 miles.

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Deforestation Moves a City

A striking instance of the disastrous effects of deforestation is included in a report of the annual meeting, held at Lacanau, of the naval stores operators of Southwest France, published in Bois et Resineux.

"Certainly Lacanau is no longer the powerful city that it was 300 years before Charlemagne, when the pool of Lacanau was not yet in existence, when a river watered the land, and when its outer harbor of Port Maurice which gave anchorage to vessels of deep draft made it comparable to Bordeaux. As a result of reckless deforestation the dunes began to encroach, closed up the estuary, and formed the vast pool of Lacanau. Port Maurice, la Canau, disappeared; the sea advanced, swallowing up the land; and the dunes advanced ahead of the sea. Such were the disastrous effects of deforestation. In 1760 Lacanau had become a city of minor importance. The dunes then began again to encroach, banking up the waters of the pool ahead of them. The inhabitants fled in alarm and a kilometer farther away rebuilt the city, which is the Lacanau of today. Thanks to management of the forests along the shore, the dunes and the pool have been stabilized and life, security, and prosperity have returned to the town. The question of the conservation of the forest on which their living depends is one which the naval stores operators have closely at heart, and the fact that they are meeting in this city which has several times been ruined by the destruction of the forest is regarded as of great symbolic interest."

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Finnish Lumber Reaches American Ports

The first shipment of lumber to the United States from Finland arrived in Boston in October. Another was already on its way to New York and a third was being loaded for Florida.

These shipments were experimental in nature. The promoter, a Finn, shipped a variety of sizes and kinds of lumber to be sold in competition with similar kinds and sizes of American lumber.

Bruno Kivikoski, charge d'affaires, Legation of Finland in Washington, states that the current selling price of lumber is about the same in Finland as in New York. It is doubtful, however, if the cost of manufacture is so low there as in the United States. In Finland freight charges make up a much smaller percentage of the final selling price than in this country. Although freight charges are lower from Finland to New York than from the Pacific Coast to New York, the difference in manufacturing cost may prove too great a handicap for the Finns.

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Sawmills in Royal Hunting Ground of Poland

The American Lumberman recently printed a letter from S. O. Johnson, a member of the National Lumber Manufacturers' Association living in Paris, about a visit to some forests in Poland. One of these was at one time the hunting ground of the kings of Poland and later of the czars of Russia. Apparently nothing was cut from it for a period of about 300 years. The czars maintained in it a herd of 900 buffaloes, and built in the center of it a very magnificent castle.

During his campaign in Poland General Von Hindenburg made his headquarters in the czars' castle. He proceeded to kill all the buffaloes for food, and his men built three sawmills containing about 18 or 20 small gang saws. They did not succeed in getting much lumber cut, however, before the war turned the other way.

The area of this forest is 300,000 acres solid, with only one clearing in the center where the castle stands. According to Mr. Johnson's calculation there are 250,000 acres that would average between 20,000 and 25,000 feet to the acre of timber that runs 70 per cent Scotch pine, or what is known in Europe as Sylvester pine. Most of the pine in Europe is between 50 and 75 years old, but the Scotch pine in this forest is from 200 to 300 years old. The remainder of the timber is excellent quality white oak, ash, and maple, with a few other hardwoods. The ground is "just as level as the wheat fields of North Dakota."

The Polish government has given a concession to cut 400,000 cubic meters (about 120,000,000 board feet) a year from this forest. The price paid for this timber is less than that paid for southern pine, Mr. Johnson says, and labor is both abundant and efficient. The railroad rates also are reasonable.

PERSONALS

Tom Gill has resigned from the Forest Service to accept a position on the staff of the American Forestry Association. Soon after the beginning of the new year he will become associate editor of American Forests and Forest Life, and will take charge of the association's educational publicity. Mr. Gill entered the Forest Service almost immediately after his graduation from the Yale Forest School in 1915 and has been connected with it continuously except for two years in the Air Service. He leaves the position of assistant chief of the public relations branch, Washington office.

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State Forester F. W. Besley of Maryland was elected president of the National Association of State Foresters at its annual convention in California on October 10. C. P. Wilber, of New Jersey, was elected vice president and Chapin Jones, of Virginia, secretary.

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W. C. McCormick, formerly assistant supervisor of the Cache National Forest, Utah, on January 1 becomes assistant State forester of North Carolina in charge of forest fire protection work. Mr. McCormick has been with the Forest Service for 10 years.

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Myron E. Krueger has been appointed associate professor of forestry in the University of California. He is taking charge of courses and investigations in logging engineering. Mr. Krueger has studied forestry both at Cornell and at the University of California, and has had 10 years of experience as a logging engineer.

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Spence D. Turner has been appointed county forester of Pomona County, Calif., where he served for many years as assistant to the former county forester, the late Stuart J. Flintham.

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Cyril B. Webster has been appointed extension forester for Texas. Mr. Webster is a graduate of the University of Michigan.

Eilhard Wiedeman, professor of forestry at Tharandt, Saxony, is studying in this country under the auspices of the Rockefeller International Board. He will spend most of the winter in Minnesota studying the work of the Lake States Experiment Station and visiting the neighboring national forests. He intends also to visit the Appalachian Forest Experiment Station and stations on the Pacific Coast.

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Parker Anderson has been appointed extension specialist in forestry with headquarters at University Farm, University of Minnesota. Mr. Anderson is a graduate of the forest school of the University of Minnesota. As extension forester he will represent the University, Department of Forestry, and Agricultural College of Minnesota, and the U. S. Department of Agriculture.

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Otto Brown has been appointed an extension forester with headquarters at the Alabama Polytechnic Institute, Auburn, Ala. Mr. Brown is a graduate of the institute and was formerly employed there as a horticulturist. For two years he served as chief of the division of plant industry of the Alabama State Board of Agriculture.

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: Filibert Roth died on December 4, at Ann Arbor. :
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: Professor Roth came to the United States from Germany :
: as a boy, and studied at the University of Michigan from :
: 1885 to 1893. After five years as a member of the staff of :
: the U. S. Bureau of Forestry he joined the faculty of the :
: New York State College of Forestry, at Cornell. From 1901 :
: to 1903 he was administrator of the national forest re- :
: serves. He then went to the University of Michigan to :
: organize the department of forestry which he headed until :
: 1923. From time to time he contributed many books and :
: articles to the literature of forestry. :
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: Professor Roth was a beloved teacher, and was one of :
: the most distinguished leaders in the forestry movement :
: in this country. :
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Recent Publications of the Forest Service

New Volume Tables

"Volume Tables for the Important Timber Trees of the United States," a handbook in three parts compiled by E. N. Munns and R. M. Brown, has just been published by the Forest Service.

Part I deals with western species and contains volume tables for both old and second-growth timber; Part II contains all the available volume tables for the eastern conifers, and Part III the volume tables for the eastern hardwoods.

Bound copies of any one or all of these parts, or separate copies of the tables, may be obtained on application to the Office of Forest Experiment Stations, U. S. Forest Service, Washington, D. C.

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Advice on Selling Black Walnut

The Forest Service receives almost daily requests from farmers and small timber owners for information on how to market their walnut timber to best advantage. In order to meet this demand the service has recently issued a farmers' bulletin entitled "Selling Black Walnut Timber." The general aim of the publication is to show what timber is of high value and what is of little or no value, as well as what are the best ways of marketing walnut. The price paid to the timber owner depends on how much timber he has that is marketable as well as on quality and the distance from railroad and mill. Owners are advised to sell their timber in the form of the log. Generally speaking, mills which specialize in walnut, cutting both lumber and veneer, pay the highest prices for walnut logs, because they produce a high-grade product.

A list of mills specializing in walnut will be supplied by the Forest Service to anyone requesting it.

Map Folders: Roads and National Forests of Montana and Idaho;
Uncompahgre, Wenatchee, and Holy Cross National Forests.

Department Circular 295, Basic Grading Rules and Working Stresses for
Structural Timber (Reprint).

Miscellaneous Circular 47, What the National Forests Mean to the Inter-
mountain Region; Miscellaneous Circular No. 53, When Fire is Ban-
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Forest Fire Control.

Yearbook Separate 847, How the Public Forests are Handled (4th Reprint).
